

**Ministry of Defence  
Defence Procurement Agency, ADRP2  
Abbey Wood  
Bristol  
BS34 8JH**

## **OBSOLESCENCE NOTICE**

All DTD specifications were declared obsolescent from 1<sup>st</sup> April 1999. All DTD 900 series approvals also lapsed at that time. The standards will no longer be updated but will be retained as obsolescent documents to provide for the servicing of existing equipment.

### **Further Guidance**

The aim in declaring the specifications obsolescent is to recognise that the documents are not being updated and thus should be used with care by both purchaser and supplier. For example, a specification could contain valid technical information but may also contain type approval clauses that contradict procurement policy and/or use materials that do not comply with environmental legislation. The obsolescent specification can still be used as a basis for a purchase provided that the supplier and purchaser agree suitable changes to the specification within the purchase order/contract.

For the DTD 900 system, each specification has provided an MoD approved material and process. For these items, the declaration of obsolescence will constitute the termination of both the extant MoD approval and the continuing MoD assessment that had underpinned those approvals. Again, the technical content of the document remains valid and can be used by both purchaser and supplier as a basis for a contract but an acceptable (to the parties) approval/assessment procedure would be required.

**Aerospace Material Specification  
BARS AND EXTRUDED SECTIONS  
OF ALUMINIUM-ZINC-MAGNESIUM-COPPER-CHROMIUM ALLOY  
(Solution treated and precipitation treated)  
(Zn 5.7, Mg 2.5, Cu 0.5, Cr 0.15)**

*NOTE 1. This specification is one of a series issued by the Procurement Executive, Ministry of Defence to meet a requirement not covered by an existing British Standard for aerospace material.*

*NOTE 2. This specification, formerly D.T.D. 5054A, has been re-numbered because the mechanical properties specified for some sizes of material differ from those specified originally in D.T.D. 5054.*

**1. INSPECTION AND TESTING PROCEDURE**

This specification shall be used in conjunction with the relevant sections of British Standard L.100 as follows:

Bars for machining and extruded sections	Sections 1 and 5
Bars for machining and extruded sections for highly stressed structures	Sections 1 and 6

**2. QUALITY OF MATERIAL**

The material shall be made from aluminium and alloying constituents, with or without approved scrap, at the discretion of the manufacturer.

**3. CHEMICAL COMPOSITION**

The chemical composition of the material shall be:

<b>Element</b>	Per cent	
	Min.	Max.
<b>Copper</b> .....	<b>0.3</b>	<b>0.7</b>
<b>Magnesium</b> .....	<b>2.2</b>	<b>3.2</b>
Silicon .....	—	0.5
Iron .....	—	0.5
Manganese .....	—	0.3
*Nickel .....	—	0.1
<b>Zinc</b> .....	<b>5.2</b>	<b>6.2</b>
*Lead .....	—	0.05
*Tin .....	—	0.05
Titanium plus Zirconium .....	—	0.2
<b>Chromium</b> .....	<b>0.08</b>	<b>0.25</b>
<b>Chromium plus Manganese</b> .....	<b>0.18</b>	<b>0.50</b>
<b>Aluminium</b> .....	<b>The remainder</b>	

\*Subject to the discretion of the Inspecting Authority, determination of these elements need be made on a small proportion only of the samples analysed.

**4. CONDITION**

**4.1 Bars and extruded sections.** Unless otherwise agreed and stated on the order in accordance with British Standard L.100, Section 5, bars for machining and extruded sections shall be supplied solution treated, straightened and subsequently precipitation treated, but not controlled stretched.

**4.2 Bars and extruded sections for highly stressed structures.** Unless otherwise agreed and stated on the order in accordance with British Standard L.100, Section 6, bars for machining and extruded sections for highly stressed structures shall be supplied solution treated, controlled stretched and subsequently precipitation treated.

## 5. HEAT TREATMENT

The material shall be heat treated as follows:

- (1) Solution treat by heating at a temperature of  $460 \pm 10^\circ\text{C}$  and quenching in water or oil.  
*NOTE.* Material that has not to be subsequently stretched shall be quenched in water at a temperature of not less than  $85^\circ\text{C}$  or in oil.
- (2) Precipitation treat by heating at a temperature of  $135 \pm 5^\circ\text{C}$  for not less than 12 hours.

## 6. MECHANICAL PROPERTIES

### 6.1 Tensile test

**6.1.1 Controlled-stretched material.** Unless they are required by British Standard L.100 to be fixed by agreement between the manufacturer and the purchaser, the mechanical properties obtained from test pieces selected and prepared in accordance with the relevant requirements of British Standard L.100 shall be not less than the following values:

Diameter or minor sectional dimension of the bar or extruded section		0.2% proof stress	Tensile strength	Elongation on gauge length of	
				50 mm	5.65 $\bar{\sigma}$ So
mm		MPa	MPa	%	%
Over	Up to and including				
10	100	450	490	6	—
100	150	480	540	6	6
		450	510	—	6

*NOTE.* Conversion factors:  $1 \text{ MPa} = 1 \text{ N/mm}^2 = 0.102 \text{ kgf/mm}^2 = 0.065 \text{ tonf/in}^2$ . Information on SI units is given in BS 3763 'The International System of units (SI)'; see also BS 350 'Conversion factors and tables'.

**6.1.2 Non-controlled stretched material.** The mechanical properties shall be agreed between the manufacturer and the purchaser.

**6.2 Hardness test.** The value of X shall be as shown in the following table:

Tensile strength of test piece*	Value of X
MPa	%
$f_t$ to less than $f_t + 15$	5
$f_t + 15$ to less than $f_t + 30$	7.5
$f_t + 30$ to less than $f_t + 45$	10
$f_t + 45$ and over	12.5

\* $f_t$  = minimum value for the particular size of material as specified in 6.1.1, or agreed in accordance with 6.1.2.

Approved for issue,

E. W. RUSSELL,

Director of Research Materials 2.

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